



9/11 Terror

Muslims Suspend Laws of Physics!

by J. McMichael
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Some of the sources have departed since this essay was originally published on October 21.

Where I could find substitutes, I have indicated them with the word "*or*" and a locally cached copy. This revision is published on November 25, 2001.

I tried to be patriotic.

I tried to believe. I watched those quarter mile high buildings fall through their jaw-dropping catastrophes over and over again. I listened to the announcer and the experts explain what had happened. And I worked at my pitiful lack of faith, pounding my skull with the remote control and staring at the flickering images on the TV screen.

But poor mental peasant that I am, I could not escape the teachings of my forefathers. I fear I am trapped in my time, walled off from further scientific understanding by my inability to abandon the Second Millennium mindset.

But enough of myself. Let us move on to the Science and Technology of the 21st Century. Those of you who cannot believe should learn the official truth by rote and perhaps you will be able to hide your ignorance.

Here are the bare bones of the WTC incident:

North tower struck 8:45 a.m. from the north at about the 93rd floor, collapsed about 10:29 a.m.

South tower struck 9:03 a.m. from the south at about the 80th floor, collapsed about 9:50 a.m.;

(<http://www.infoplease.com/spot/sept112001.html> *or*: <http://www.public-action.com/911/jmcm/info.html>).

- Impact locations estimated by Scientific American
<http://www.sciam.com/explorations/2001/100901wtc> *or*:
- Geographic information for WTC given at <http://www.public-action.com/911/jmcm/wtcgeog>
- Comprehensive info on WTC with 3D model of complex at
http://www.GreatBuildings.com/buildings/World_Trade_Center.html



North tower struck 8:45 a.m. from the north at about the 93rd floor



South tower struck 9:03 a.m. from the south at about the 80th floor

Using jet fuel to melt steel is an amazing discovery, really. It is also amazing that until now, no one had been able to get it to work, and that proves the terrorists were not stupid people. Ironworkers fool with acetylene torches, bottled oxygen, electric arcs from generators, electric furnaces, and other elaborate tricks, but what did these brilliant terrorists use? Jet fuel, costing maybe 80 cents a gallon on the open market.

Let us consider: One plane full of jet fuel hit the north tower at 8:45 a.m., and the fuel fire burned for a while with bright flames and black smoke. We can see pictures of white smoke and flames shooting from the windows.

Then by 9:03 a.m. (which time was marked by the second plane's collision with the south tower), the flame was mostly gone and only black smoke continued to pour from the building. To my simple mind, that would indicate that the first fire had died down, but something was still burning inefficiently, leaving soot (carbon) in the smoke. A fire with sooty smoke is either low temperature or starved for oxygen -- or both.

(http://www.fosters.com/news2001c/september/11/04758CA1-AC58-4591-9F50-5976D2_BE2E04.jpg **or:** <http://www.public-action.com/911/jmcm/fires1-2.html>).

But by 10:29 a.m., the fire in north tower had accomplished the feat that I find so amazing: It melted the steel supports in the building, causing a chain reaction within the structure that brought the building to the ground.

And with less fuel to feed the fire, the south tower collapsed only 47 minutes after the plane collision, again with complete destruction. This is only half the time it took to destroy the north tower.

I try not to think about that. I try not to think about a petroleum fire burning for 104 minutes, just getting hotter and hotter until it reached 1538 degrees Celsius (2800 Fahrenheit) and melted the steel (steel is about 99% iron;

for melting points of iron and steel, see <http://www.webelements.com/webelements/elements/text/Fe/heat.html> , <http://www.weldtechnology.com/rwintroduction.html> **or:** <http://www.public-action.com/911/jmcm/rwintroduction.html>)

I try not to wonder how the fire reached temperatures that only bottled oxygen or forced air can produce.

And I try not to think about all the steel that was in that building -- 200,000 tons of it (for WTC statistics, see <http://www.infoplease.com/spot/wtc1.html> **or:** <http://www.public-action.com/911/jmcm/wtc1.html>).

I try to forget that heating steel is like pouring syrup onto a plate: you can't get it to stack up. The heat just flows out to the colder parts of the steel, cooling off the part you are trying to warm up. If you pour it on hard enough and fast enough, you can get the syrup to stack up a little bit. And with very high heat brought on very fast, you can heat up one part of a steel object, but the heat will quickly spread out and the hot part will cool off soon after you stop.

Am I to believe that the fire burned for 104 minutes in the north tower, gradually heating the 200,000 tons of steel supports like a blacksmith's forge, with the heat flowing throughout the skeleton of the tower? If the collapse was due to heated steel, the experts should be able to tell us how many thousands of tons of steel were heated to melting temperature in 104 minutes and how much fuel would be required to produce that much heat. Can a single Boeing 767 carry that much fuel?

Thankfully, I found this note on the BBC web page (http://news.bbc.co.uk/1/hi/english/world/americas/newsid_1540000/1540044.stm **or:** <http://www.public-action.com/911/jmcm/BBCNews>): "Fire reaches 800 [degrees] C -- hot enough to melt steel floor supports."

That is one of the things I warned you about: In the 20th Century, steel melted at 1535 degrees Celsius (2795 F), (see <http://www.chemicalelements.com/elements/fe.html>), but in the 21st Century, it melts at 800 degrees C (1472 F).

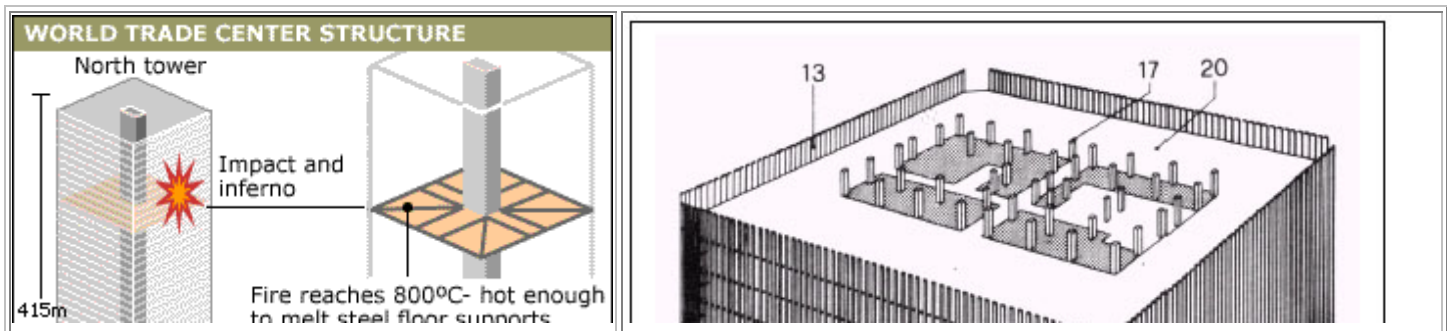
This might be explained as a reporter's mistake -- 800 to 900 C is the temperature for forging wrought iron. As soft as wrought iron is, of course, it would never be used for structural steel in a landmark skyscraper. (Descriptions of cast iron, wrought iron, steel, and relevant temperatures discussed at <http://www.metrum.org/measures/castiron.htm> **or:** <http://public-action.com/911/jmcm/castiron.htm> .)

But then lower down, the BBC page repeats the 800 C number in bold, and the article emphasizes that the information comes from Chris Wise, "Structural Engineer." Would this professional individual permit himself to be misquoted in a global publication?

Eduardo Kausel, an M.I.T. professor of civil and environmental engineering, spoke as follows to a panel of Boston area civil and structural engineers: "I believe that the intense heat softened or melted the structural elements -- floor trusses and columns -- so that they became like chewing gum, and that was enough to trigger the collapse." Kausel is apparently satisfied that a kerosene fire could melt steel -- though he does not venture a specific temperature for the fire (<http://www.sciam.com/explorations/2001/100901wtc> **or:** <http://www.public-action.com/911/jmcm/sciam>).

I feel it coming on again -- that horrible cynicism that causes me to doubt the word of the major anchor-persons. Please just think of this essay as a plea for help, and do NOT let it interfere with your own righteous faith. The collapse of America's faith in its leaders must not become another casualty on America's skyline.

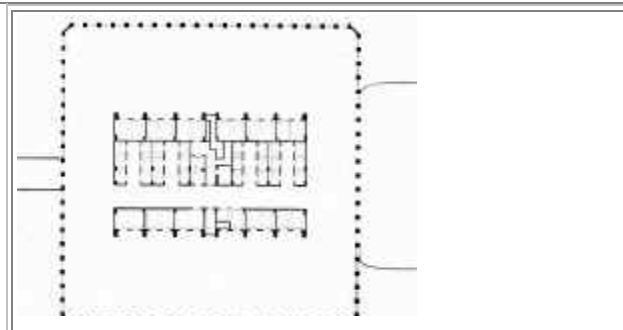
In my diseased mind, I think of the floors of each tower like a stack of LP (33-1/3 RPM) records, except that the floors were square instead of circular. They were stacked around a central spindle that consisted of multiple steel columns interspersed with dozens of elevator shafts (see http://www.skyscraper.org/tallest/t_wtc.htm , <http://www.civil.usyd.edu.au/wtc.htm> , and http://www.GreatBuildings.com/buildings/World_Trade_Center.html).

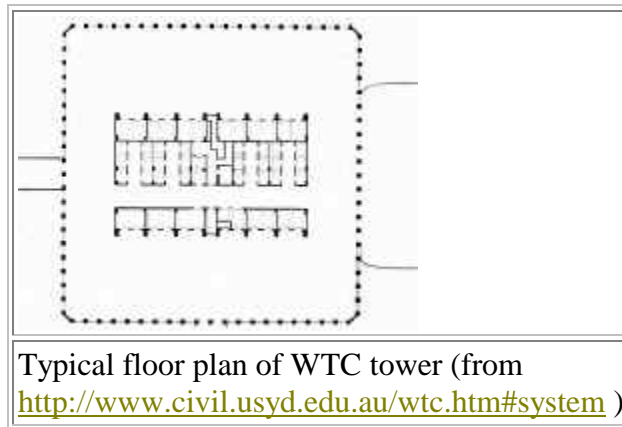


Images cached from BBC page (http://news.bbc.co.uk/1/hi/english/world/americas/newsid_1540000/1540044.stm or: <http://www.public-action.com/911/jmcm/BBCNews>) and HERA report by G. Charles Clifton (<http://www.hera.org.nz/PDF%20Files/World%20Trade%20Centre.pdf> or: <http://www.public-action.com/911/jmcm/clifton.pdf>). Items indicated in Clifton image (right): **13**. Exterior columns; **17**. Interior columns; **20**. Usable office space

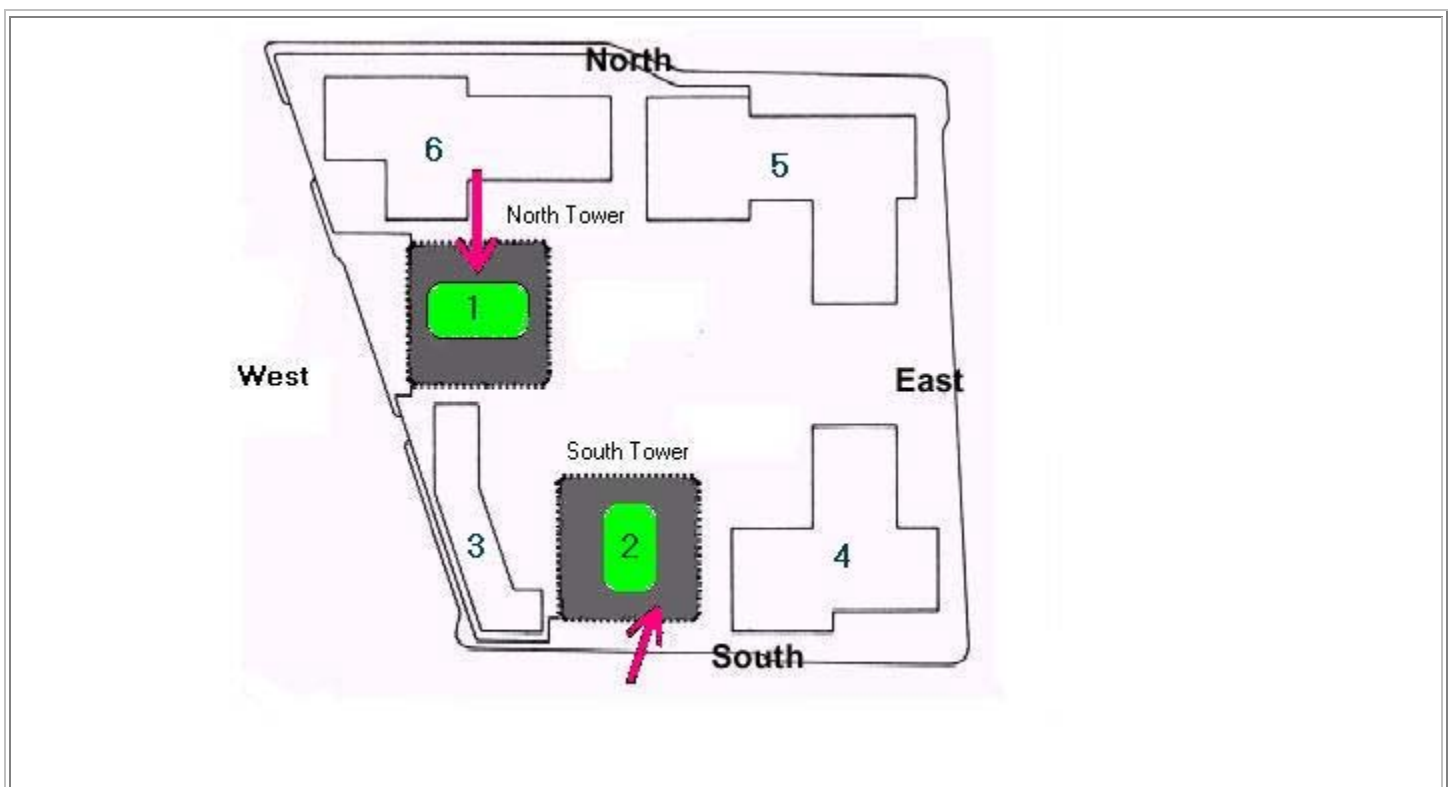
BBC News Image (left) is misleading:

1. A "beam" is always horizontal, "columns" are vertical. The vertical steel supports in the core were columns.
2. The central columns occupied about 25% of the floor area, not 10% as is shown on the left.
3. The central columns were not encased in a single block of concrete, but interspersed with elevator shafts





The outside shape of the towers was almost square, but the inner core was more rectangular. Pictures from the early phases of construction photos show how the rectangular inner cores were oriented in the finished buildings ([http://www.GreatBuildings.com/cgi-bin/gbi.cgi/World Trade Center Images.html/cid_wtc_mya_WTC_const.4.gbi](http://www.GreatBuildings.com/cgi-bin/gbi.cgi/World_Trade_Center/Images.html/cid_wtc_mya_WTC_const.4.gbi)). Note that the north tower core was aligned east-west, and the south tower core was aligned north-south.



This drawing shows the two WTC towers (black) and the paths of the attacking aircraft (red). Within the profile of each tower, the shape of the central core is shown by the green rectangle. WTC buildings 1 through 6 are numbered, WTC 7, north of 6, is not shown.

With the central core bearing the weight of the building, the platters were tied together and stabilized by another set of steel columns at the outside rim, closely spaced and completely surrounding the structure. This resulting

structure was so stable that the top of the towers swayed only three feet in a high wind. The architects called it a "tube-within-a-tube design."

The TV experts told us that the joints between the floors and central columns melted (or the floor trusses, or the central columns, or the exterior columns, depending on the expert) and this caused the floor to collapse and fall onto the one below. This overloaded the lower floor, and the two of them fell onto the floor below, and so on like dominos (see <http://news-info.wustl.edu/News/nrindex00/harmon.html> **or:** <http://www.public-action.com/911/jmcm/harmon>).

Back in the early 1970s when the World Trade Towers were built, the WTC was the tallest building that had ever been built in the history of the world. If we consider the architectural engineers, suppliers, builders, and city inspectors on the job, we can imagine they would be very careful to overbuild every aspect. If one bolt was calculated to serve, you can bet that three or four were used. If there was any doubt about the quality of a girder or steel beam, you can be sure it was rejected. After all, any failures would attract the attention of half the civilized world, and no corporation wants a reputation for that kind of stupidity -- particularly if there are casualties.

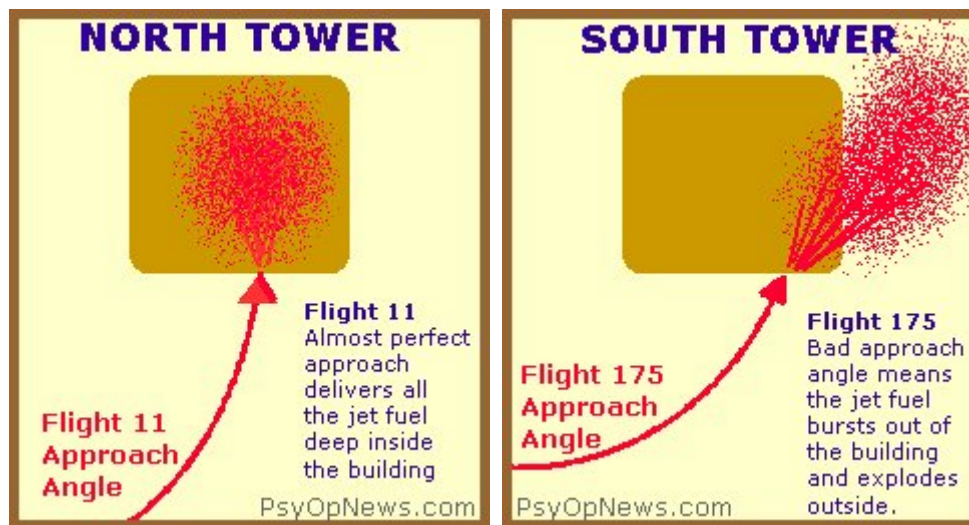
I do not know the exact specifications for the WTC, but I know in many trades (and some I've worked), a structural member must be physically capable of three times the maximum load that will ever be required of it ($\text{BreakingStrength} = 3 \times \text{WorkingStrength}$).

According to *Engineering and Technical Handbook* by McNeese and Hoag, Prentice Hall, 3rd printing, September 1959: page 47 (Table) *Safety Factors of Various Materials*, the mandatory safety factor for structural steel is 600%. That is, a steel structure may be rated for a load of only one sixth the actual theoretical limit.

Given that none of those floors was holding a grand piano sale or an elephant convention that day, it is unlikely that any of them were loaded to the maximum. Thus, any of the floors should have been capable of supporting more than its own weight plus the two floors above it. I suspect the WTC was engineered for safer margins than the average railroad bridge, and the actual load on each floor was less than 1/6 the BreakingStrength. The platters were constructed of webs of steel trusses. Radial trusses ran from the perimeter of the floor to the central columns, and concentric rings of trusses connected the radial trusses, forming a pattern like a spider web (see http://news.bbc.co.uk/olmedia/1540000/images/_1540044_world_trade_structure300.gif **or:** <http://www.public-action.com/911/jmcm/BBCNews/DOCS/1540044w.gif>). Where the radial trusses connected with the central columns, I imagine the joints looked like the big bolted flanges where girders meet on a bridge -- inches thick bolts tying the beams into the columns.

In order to weaken those joints, a fire would have to heat the bolts or the flanges to the point where the bolts fell apart or tore through the steel. But here is another thing that gives me problems -- all the joints between the platter and the central columns would have to be heated at the same rate in order to collapse at the same time -- and at the same rate as the joints with the outer columns on all sides -- else one side of the platter would fall, damaging the floor below and making obvious distortions in the skin of the building, or throwing the top of the tower off balance and to one side.

But there were no irregularities in the fall of those buildings. They fell almost as perfectly as a deck of cards in the hands of a magician doing an aerial shuffle.



Images cached from PsyOpNews:
The Splitsecond Error

This is particularly worrisome since the first plane struck one side of the north tower, causing (you would think) a weakening on that side where the exterior columns were struck, and a more intense fire on that side than on the other side. And the second plane struck near the corner of the south tower at an angle that caused much of the fuel to spew out the windows on the adjacent side (see

<http://www.eionews.addr.com/images/wtc/southtowerpath.jpg> or: <http://www.public-action.com/911/jmcm/southtowerpath.jpg>).

Yet the south tower also collapsed in perfect symmetry, spewing dust in all directions like a Fourth of July sparkler burning to the ground (<http://www.public-action.com/911/jmcm/usyd/DOCS/dustfountain.jpg>).

This symmetry of descent is even more remarkable in the south tower because in the first moments of the collapse, the top 20 floors of the south tower tilted over to the south (

http://news.bbc.co.uk/olmedia/1535000/images/1538563_thecollapseap150.jpg
or: <http://www.public-action.com/911/jmcm/BBCNews/DOCS/1538563t.jpg>).



Whatever irregularities caused the top of the tower to tilt, subsequent pictures show the tower falling mostly within its own footprint. There are no reports of this cube of concrete and steel from the upper floors (measuring 200 ft. wide, 200 ft. deep, and 250 ft high) falling a 1000 feet onto the buildings below.

Implosion expert Mark Loizeaux, president of Controlled Demolition, Inc. of Phoenix, MD, was also misled by the picture. Having observed the collapses on television news, Loizeaux said the 1,362-ft-tall south tower failed much as one would fell a tree (http://www.civil.usyd.edu.au/wtc_enr.htm or: <http://www.public-action.com/911/jmcm/USYDENR>).

I have recently seen a videotape rerun of the south tower falling. In that take, the upper floors descend as a complete unit, tilted over as shown on the BBC page, sliding down behind the intervening buildings like a piece of stage scenery.

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Muslims Suspend Laws of Physics!

Part II

by J. McMichael

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Originally published early in 1992, this second part was saved from extinction by Serendipity at

<http://www.serendipity.li/>

Some people have written to me (or commented publicly) that the collapse of the World Trade Center was a perfectly normal event caused by the heat of the fire.

Let me recall a few details to the reader's attention before answering that statement.

Citing structural engineer Chris Wise, the BBC web page stated that steel supports in the WTC reached 1500 degrees Fahrenheit and melted (http://news.bbc.co.uk/1/hi/english/world/americas/newsid_1540000/1540044.stm). That is of course not correct, and I provided a link to an on-line chemistry chart to show that steel melts closer to 2800 degrees F.

Note that the statement (that the WTC steel melted) is not mine: The statement comes from the BBC page, citing Chris Wise, and from others on television.

The critics have pointed out that steel does not MELT at 1500 F, but it does soften and lose its strength, enough to cause the towers to collapse. We are asked to believe, as one Australian put it, that steel supports turn to licorice when heated in a fire.

Corus Steel is a trans-national corporation that markets structural steel (<http://www.corusconstruction.com/>). One graph on their web page shows the diminishing strength of steel as it is heated. <http://www.corusconstruction.com/fire/fr006.htm>

Note that structural steel at 550 degrees C (1022 F) has 60% of the strength of steel at normal temperatures. This weakening of steel when heated is supposedly responsible for the catastrophic collapse of the towers. The statement generates three questions to be answered in order to determine whether this phenomenon could cause the collapse of the World Trade Center:

1. How much strength would the steel have to lose for the WTC to collapse?
2. What temperature would the steel have to reach to occasion this loss of strength?
3. What was the temperature of the fire in the WTC; i.e., did it reach the critically weakening temperature?

Question 1:

In the original article, I cited my own experience that a support device must be capable of bearing three times the maximum load that would ever be applied.

It turns out that this rule-of-thumb is applicable only to dynamic loads, not static (structural) loads of commercial buildings. Since then, I have been informed by a commercial structural engineer that the standard ratio for static loads is five, not three. That is, if a bridge is rated to carry 1 ton, it should be capable of bearing 5 tons without collapsing at the time the bridge is built.

Going back to the fire at the WTC, we can see that reducing the steel structure to 60% its rated strength should NOT have weakened it to catastrophic collapse, because at 60% it would still support three times the rated load. The steel structure would have to be reduced to 20% of its rated strength to collapse.

Thus, even if the fire had heated the steel to 550 degrees C (1022 F), that would not have been sufficient to cause the towers to collapse.

Question 2:

The Corus page on fire vs. steel supports (<http://www.corusconstruction.com/fire/fr006.htm>) shows that the steel would have to be heated to about 720 degrees C (1320 F) to weaken the steel to 20% of its cool strength.

The text on that page discusses another change in the steel above 550 degrees C (1022 F): It loses elasticity and becomes plastic. Elasticity means that when the steel is bent, it returns to its original shape; it springs back. Plasticity means that the steel is permanently deformed and does not spring back to the original shape.

Springing back or not, our only concern with this page is to determine the point on the graph where the steel would be weakened to 20% its original strength, and that point is 720 degrees C (1320 F).

For steel, 550 degrees C (1022 F) is an important threshold, however, and we should not be glib with it. If a steel tower were heated to 550 C, loss of elasticity could mean that the tower would not spring back to the original shape after a gust of wind, and a series of buffets might cause the tower to fail -- if the strain exceeded the reduced strength of the hot steel.

Question 3:

Now let us make a guess on the actual heat of the fire.

Fortunately, a number of studies have been done under very similar conditions. In Europe, multi-storied "car parks" are often built of steel, and the possibility of vehicle fire is a distinct possibility. A parked vehicle, loaded with gasoline, diesel, tires, engine oil, engine tar, upholstery, hydraulic fluid, etc. can cause a fire that seems very hot. A number of other vehicles could be parked close to the burning one, and they too could catch fire, with a general conflagration. Any number of cars could contain almost any household items from shopping, etc.

These materials are similar to the materials we would expect in the burning offices of the WTC: jet fuel (which

is a refined kerosene, very similar to the diesel used in some European cars), oil, upholstery, etc.

A summary of the results of these studies is published on the Corus page. Go to <http://www.corusconstruction.com/> and click on "Fire". Individual articles are listed across the top of the window. The fourth article, "Fire in Car Parks," discusses the temperatures of "any fires that are likely to occur" in a car park (<http://www.corusconstruction.com/carparks/cp006.htm>).

Presumably, one car could catch fire and inflame other cars parked closely nearby. As explained below, "The maximum temperatures reached [in actual test fires] in open sided car parks in four countries" was 360 degrees C (680 F), and structural steel has "sufficient inherent resistance to withstand the effects of any fires that are likely to occur."

Here is the relevant paragraph, complete: "Steel-framed car parks have been rigorously fire tested in a number of countries (Table 3). These tests demonstrate that most unprotected steel in open sided steel-framed car parks has sufficient inherent resistance to withstand the effects of any fires that are likely to occur. Table 3 lists the maximum temperatures reached in open sided car park tests in four countries. These can be compared with the characteristic failure temperatures for beams carrying insulating floor slabs and columns of 620 [degrees] C and 550 [degrees] C respectively."

Note that the description does not limit the duration of the fire. From this it does not appear to matter whether the fire burned all week or just for two hours. No mention is made, as some people have suggested (from erroneous interpretation of other graphs involving time), that prolonged heat brings about progressive weakening of steel.

Here is the data from Corus' Table 3 (beams are horizontal members, columns are vertical):

Full scale fire tests	Maximum measured steel temperature	
Country	Beam	Column
UK	275 C (527 F)	360 C (680 F)
Japan	245 C (473 F)	242 C (467 F)
USA	226 C (438 F)	-
Australia	340 C (644 F)	320 C (608 F)

A fire in a steel car park is a very imprecise event, and the heating of the steel supports varied widely in the tests. The temperature of (horizontal) beams varied from 226 C in the USA to 340 C in Australia; and the temperature of (vertical) columns varied from 242 C in Japan to 360 C in the UK. None of the steel was protected with the thermal insulation that is commonly used in office buildings, including the WTC.

To my mind, this is definitive answer: the maximum temperature in the unprotected steel supports in those test fires was 360 degrees C (680 F), and that is a long way from the first critical threshold in structural steel, 550 degrees C (1022 F).

Some may argue that there was much more fuel involved in the WTC events than in a car park. There was also much more steel involved, the support columns were more massive, and they were protected with insulation.

I think the case is made: The fire did not weaken the WTC structure sufficiently to cause the collapse of the towers.

— J. McMichael

Detailed information of the construction World Trade Center (with many photographs) can be found at http://www.GreatBuildings.com/buildings/World_Trade_Center.html

